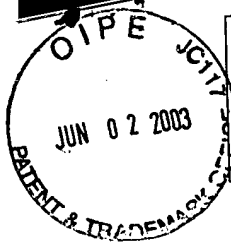


1638



I hereby certify that this correspondence is being deposited with the U.S. Postal Service with sufficient postage as First Class Mail, in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313 on the date shown below.

Dated: 5/30/03

Signature: [Signature]
(Anna P. Lucey)

Docket No.: GNCA-P03-007
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Beach et al

Application No.: 10/055797

Filed: January 22, 2002

For: METHODS AND COMPOSITIONS FOR
RNA INTERFERENCE

Group Art Unit: 1638

Examiner: Not Yet Assigned

RECEIVED

JUN 04 2003

TECH CENTER 1600/2900

INFORMATION DISCLOSURE STATEMENT (IDS)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313

Pursuant to 37 CFR 1.56, the attention of the Patent and Trademark Office is hereby directed to the references listed on the attached PTO/SB/08. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the references be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

This Information Disclosure Statement is filed before the mailing date of a first Office Action on the merits as far as is known to the undersigned.

A copy of each reference on PTO/SB/08 is attached.

While the information and references disclosed in this Information Disclosure Statement may be "material" pursuant to 37 CFR 1.56, it is not intended to constitute an admission that any patent, publication or other information referred to therein is "prior art" for this invention unless specifically designated as such.

Application No.: 10/055797

Docket No.: GNCA-P03-007

In accordance with 37 CFR 1.97(g), the filing of this Information Disclosure Statement shall not be construed to mean that a search has been made or that no other material information as defined in 37 CFR 1.56(a) exists. Applicants further reserve the right to take appropriate action to establish the patentability of the disclosed invention over the listed documents should one or more of the documents be applied against the claims of the present application.

The Commissioner is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 18/1945, under Order No. GNCA-P03-007.

Dated:

May 30, 2003

Respectfully submitted,

By

Matthew P. Vincent

Registration No.: 36,709

ROPES & GRAY LLP

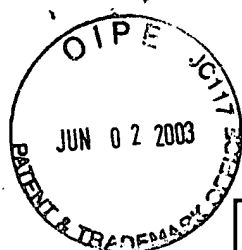
One International Place

Boston, Massachusetts 02110-2624

(617) 951-7000

(617) 951-7050 (Fax)

Attorneys/Agents For Applicant



PTO/SB/08A (10-01)

Approved for use through 10/31/2002.OMB 0651-0031

U. S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)				Complete if Known	
				Application Number	10/055797
				Filing Date	January 22, 2002
				First Named Inventor	David Beach
				Art Unit	1638
				Examiner Name	Not Yet Assigned
Sheet	1	of	5	Attorney Docket Number	GNCA-P03-007

RECEIVED
JUN 04 2003
TECH CENTER 1600/2900

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
	AA	6,326,193	12-04-2001	Liu et al.	

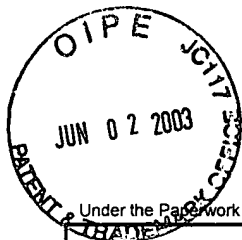
FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
		Country Code ³ -Number ⁴ -Kind Code ⁵ (if known)				
	AB	WO 01/36646	05-25-2001	Cancer Res. Campaign Tech.		
	AC	WO 01/48183	07-05-2001	Devgen NV		
	AD	WO 01/75164	10-11-2001	Whitehead Inst. Biomed. Res.		
	AE	WO 02/44321	06-06-2002	Max-Planck-Gesellschaft		
	AF	WO 02/059300	08-01-2002	J & J Res. Pty Ltd		
	AG	WO 02/068635	09-06-2002	Novartis		

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant

¹ Applicant's unique citation designation number (optional). ² See attached Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the application number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
	AH	Bass, B.L. Double-Stranded RNA as a Template for Gene Silencing. <i>Cell</i> 101, 235-238 (2000).	
	AI	Baulcombe, D.C. RNA as a target and an initiator of post-transcriptional gene silencing in transgenic plants. <i>Plant Mol. Biol.</i> 32, 79-88 (1996).	
	AJ	Baulcombe, D.C. Gene silencing: RNA makes RNA makes no protein. <i>Curr. Biol.</i> 9, R599-R601 (1999).	
	AK	Bohmert, K. et al. AGO1 defines a novel locus of Arabidopsis controlling leaf development. <i>EMBO J.</i> 17, 170-180 (1998).	
	AL	Bosher, J.M. et al. RNA Interference Can Target Pre-mRNA: Consequences for Gene Expression in a Caenorhabditis elegans Operon. <i>Genetics</i> 153, 1245-1256 (Nov. 1999).	
	AM	Bosher, J.M. & Labouesse, M. RNA interference: genetic wand and genetic watchdog. <i>Nat. Cell Biol.</i> 2, E31-36 (2000).	
	AN	Catalanotto, C. et al. Gene silencing in worms and fungi. <i>Nature</i> 404, 245 (2000).	

Examiner Signature		Date Considered	
-----------------------	--	--------------------	--



PTO/SB/08A (10-01)

Approved for use through 10/31/2002. OMB 0651-0031

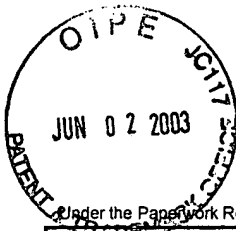
U. S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO				Complete if Known	
				Application Number	10/055797
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)				Filing Date	January 22, 2002
				First Named Inventor	David Beach
				Art Unit	1638
				Examiner Name	Not Yet Assigned
				Attorney Docket Number	GNCA-P03-007
Sheet	2	of	5		

AO	Cogoni, C. & Macino, G. Gene silencing in <i>Neurospora crassa</i> requires a protein homologous to RNA-dependent RNA polymerase. <i>Nature</i> 399, 166-169 (1999).
AP	Cogoni, C. & Macino, G. Posttranscriptional Gene Silencing in <i>Neurospora</i> by a RecQ DNA Helicase. <i>Science</i> 286, 2342-2344 (1999).
AQ	Connelly, J.C. & Leach, D.R. The sbcC and sbcD genes of <i>Escherichia coli</i> encode a nuclease involved in palindrome inviability and genetic recombination. <i>Genes Cell</i> 1, 285-291 (1996).
AR	Dalmay, T. et al. An RNA-Dependent RNA Polymerase Gene in <i>Arabidopsis</i> is Required for Posttranscriptional Gene Silencing Mediated by a Transgene but Not by a Virus. <i>Cell</i> 101, 543-553 (2000).
AS	Di Nocera, P.P. & Dawid, I.B. Transient expression of genes introduced into cultured cells of <i>Drosophila</i> . <i>PNAS</i> 80, 7095-7098 (1983).
AT	Fagard, M. et al. AGO1, QDE-2, and RDE-1 are related proteins required for post-transcriptional gene silencing in plants, quelling in fungi, and RNA interference in animals. <i>PNAS</i> 97, 11650-11654 (10 Oct. 2000).
AU	Fire, A. RNA-triggered gene silencing. <i>Trends Genet.</i> 15, 358-363 (1999).
AV	Fire, A. et al. Potent and specific genetic interference by double-stranded RNA in <i>Caenorhabditis elegans</i> . <i>Nature</i> 391, 806-811 (1998).
AW	Fortier, E. & Belote, J.M. Temperature-Dependent Gene Silencing by an Expressed Inverted Repeat in <i>Drosophila</i> . <i>Genesis</i> 26, 240-244 (2000).
AX	Gillespie, D.E. & Berg, C.A. homeless is required for RNA localization in <i>Drosophila</i> oogenesis and encodes a new member of the DE-H family of RNA-dependent ATPases. <i>Genes Dev.</i> 9, 2495-2508 (1995).
AY	Guo, S. & Kemphues, K.J. par-1, a Gene Required for Establishing Polarity in <i>C. elegans</i> Embryos, Encodes a Putative Ser/Thr Kinase that is Asymmetrically Distributed. <i>Cell</i> 81, 611-620 (1995).
AZ	Hamilton, J.A. & Baulcombe, D.C. A Species of Small Antisense RNA in Posttranscriptional Gene Silencing in Plants. <i>Science</i> 286, 950-952 (1999).
BA	Hammond, S.M. et al. An RNA-directed nuclease mediates post-transcriptional gene silencing in <i>Drosophila</i> cells. <i>Nature</i> 404, 293-296 (2000).
BB	Hunter, C. Genetics: A touch of elegance with RNAi. <i>Curr. Biol.</i> 9, R440-R442 (1999).
BC	Jacobsen, S.E. et al. Disruption of an RNA helicase/RNase III gene in <i>Arabidopsis</i> causes unregulated cell division in floral meristems. <i>Development</i> 126, 5231-5243 (1999).
BD	Jones, A.L. et al. De novo methylation and co-suppression induced by a cytoplasmically replicating plant RNA virus. <i>EMBO J.</i> 17, 6385-6393 (1998).

Examiner Signature		Date Considered	
--------------------	--	-----------------	--



PTO/SB/08A (10-01)

Approved for use through 10/31/2002. OMB 0651-0031

U. S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

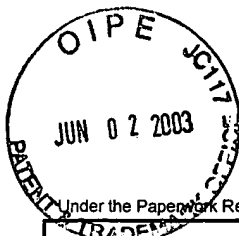
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)				Application Number	10/055797
				Filing Date	January 22, 2002
				First Named Inventor	David Beach
				Art Unit	1638
				Examiner Name	Not Yet Assigned
Sheet	3	of	5	Attorney Docket Number	GNCA-P03-007

RECEIVED
JUN 02 2003
TECH CENTER 1600/2900

BE	Jones, L. et al. RNA-DNA Interactions and DNA Methylation in Post-Transcriptional Gene Silencing. <i>Plant Cell</i> 11, 2291-2301 (Dec. 1999).	
BF	Kalejta, R.F. et al. An Integral Membrane Green Fluorescent Protein Marker, Us9-GFP, is Quantitatively Retained in Cells during Propidium Iodide-Based Cell Cycle Analysis by Flow Cytometry. <i>Exp. Cell. Res.</i> 248, 322-328 (1999).	
BG	Kennerdell, J.R. & Carthew, R.W. Use of dsRNA-Mediated Genetic Interference to Demonstrate that frizzled and frizzled 2 Act in the Wingless Pathway. <i>Cell</i> 95, 1017-1026 (1998).	
BH	Kennerdell, J.R. & Carthew, R.W. Heritable gene silencing in Drosophila using double-stranded RNA. <i>Nat. Biotechnol.</i> 17, 896-898 (2000).	
BI	Ketting, R.F. et al. mut-7 of <i>C. elegans</i> , Required for Transposon Silencing and RNA Interference, Is a Homolog of Werner Syndrome Helicase and RNaseD. <i>Cell</i> 99, 133-141 (1999).	
BJ	Kramer, E.R. et al. Activation of the human anaphase-promoting complex by proteins of the CDC20/Fizzy family. <i>Curr. Biol.</i> 8, 1207-1210 (1998).	
BK	Lam, G. & Thummel, C.S. Inducible expression of double-stranded RNA directs specific genetic interference in Drosophila. <i>Curr. Biol.</i> 10, 957-963 (2000).	
BL	Lohmann, J.U. et al. Silencing of Developmental Genes in Hydra. <i>Dev. Biol.</i> 214, 211-214 (1999).	
BM	Matsuda, S. et al. Molecular cloning and characterization of a novel human gene (HERNA) which encodes a putative RNA-helicase. <i>Biochim. Biophys. Acta</i> 1490, 163-169 (2000).	
BN	Misquitta, L. & Paterson, B.M. Targeted disruption of gene function in Drosophila by RNA interference (RNA-i): A role for nautilus in embryonic somatic muscle formation. <i>PNAS</i> 96, 1451-1456 (Feb. 1999).	
BO	Montgomery, M.K. et al. RNA as a target of double-stranded RNA-mediated genetic interference in <i>Caenorhabditis elegans</i> . <i>PNAS</i> 95, 15502-15507 (Dec. 1998).	
BP	Montgomery, M.K. & Fire, A. Double-stranded RNA as a mediator in sequence-specific genetic silencing and co-suppression. <i>Trends Genet.</i> 14, 255-258 (1998).	
BQ	Mourrain, P. et al. Arabidopsis SGS2 and SGS3 Genes are Required for Posttranscriptional Gene Silencing and Natural Virus Resistance. <i>Cell</i> 101, 533-542 (2000).	
BR	Ngo, H. et al. Double-stranded RNA induces mRNA degradation in <i>Trypanosoma brucei</i> . <i>PNAS</i> 95, 14687-14692 (Dec. 1998).	
BS	Ratcliff, F. et al. A Similarity Between Viral Defense and Gene Silencing in Plants. <i>Science</i> 276, 1558-1560 (1997).	

Examiner Signature		Date Considered	
--------------------	--	-----------------	--



PTO/SB/08A (10-01)

Approved for use through 10/31/2002.OMB 0651-0031

U. S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Complete if Known			
		Application Number	10/055797		
		Filing Date	January 22, 2002		
		First Named Inventor	David Beach		
		Art Unit	1638		
		Examiner Name	Not Yet Assigned		
Sheet	4	of	5	Attorney Docket Number	GNCA-P03-007

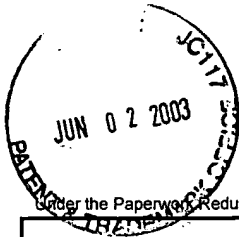
RECEIVED

JUN 4 2003

TECH CENTER 1600/2900

BT	Sanchez Alvarado, A. & Newmark, P.A. Double-stranded RNA specifically disrupts gene expression during planarian regeneration. <i>PNAS</i> 96, 5049-5054 (April 1999).
BU	Schneider, I. Cell lines derived from late embryonic stages of <i>Drosophila melanogaster</i> . <i>J. Embryol. Exp. Morpho.</i> 27, 353-365 (1972).
BV	Sharp, P.A. RNAi and double-strand RNA. <i>Genes Dev.</i> 13, 139-141 (1999).
BW	Shi, H. et al. Genetic interference in <i>Typanosoma brucei</i> by heritable and inducible double-stranded RNA. <i>RNA</i> 6, 1069-1076 (2000).
BX	Shuttleworth, J. & Colman, A. Antisense oligonucleotide-directed cleavage of mRNA in <i>Xenopus</i> oocytes and eggs. <i>EMBO J.</i> 7, 427-434 (1988).
BY	Sijen, T. & Kooter, J.M. Post-transcriptional gene-silencing: RNAs on the attack or on the defense? <i>Bioessays</i> 22, 520-531 (2000).
BZ	Smardon, A. et al. EGO-1 is related to RNA-directed RNA polymerase and functions in germline development and RNA interference in <i>C. elegans</i> . <i>Curr. Biol.</i> 10, 169-178 (2000).
CA	Smith, N.A. et al. Total silencing by intron-spliced hairpin RNAs. <i>Nature</i> 407, 319-320 (2000).
CB	Tabara, H. et al. RNAi in <i>C. elegans</i> : Soaking in the Genome Sequence. <i>Science</i> 282, 430-432 (1998).
CC	Tabara, H. et al. The rde-1 Gene, RNA Interference, and Transposon Silencing in <i>C. elegans</i> . <i>Cell</i> 99, 123-132 (1999).
CD	Tavernarakis, N. et al. Heritable and inducible genetic interference by double-stranded RNA encoded by transgenes. <i>Nat. Genet.</i> 24, 180-183 (2000).
CE	Timmons, L. & Fire, A. Specific interference by ingested dsRNA. <i>Nature</i> 395, 854 (1998).
CF	Tuschl, T. et al. Targeted mRNA degradation by double-stranded RNA in vitro. <i>Genes Dev.</i> 13, 3191-3197 (1999).
CG	Vaucheret, H. et al. Transgene-induced gene silencing in plants. <i>Plant J.</i> 16, 651-659 (1998).
CH	Wassenegger, M. & Pelissier, T. A model for RNA-mediated gene silencing in higher plants. <i>Plant Mol. Biol.</i> 37, 349-362 (1998).
CI	Waterhouse, P.M. et al. Virus resistance and gene silencing in plants can be induced by simultaneous expression of sense and antisense RNA. <i>PNAS</i> 95, 13959-13964 (Nov. 1998).
CJ	Wianny, F. & Zernicka-Goetz, M. Specific interference with gene function by double-stranded RNA in early mouse development. <i>Nature Cell Biol.</i> 2, 70-75 (2000).
CK	Wolf, D.A. & Jackson, P.K. Cell cycle: Oiling the gears of anaphase. <i>Curr. Biol.</i> 8, R636-R639 (1998).

Examiner Signature		Date Considered	
--------------------	--	-----------------	--



PTO/SB/08A (10-01)

Approved for use through 10/31/2002. OMB 0651-0031

U. S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)				Complete if Known	
				Application Number	10/055797
				Filing Date	January 22, 2002
				First Named Inventor	David Beach
				Art Unit	1638
				Examiner Name	Not Yet Assigned
				Attorney Docket Number	GNCA-P03-007
Sheet	5	of	5		

	CL	Zamore, P.D. et al. RNAi: Double-Stranded RNA Directs the ATP-Dependent Cleavage of mRNA at 21 to 23 Nucleotide Intervals. <i>Cell</i> 101, 25-33 (2000).	
--	----	---	--

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Applicant's unique citation designation number (optional). ²Applicant is to place a check mark here if English language Translation is attached.

Examiner Signature		Date Considered	
-----------------------	--	--------------------	--